To: Mr. Burton S. Mullins, Primary Patent Examiner:

Thanks for your attention to our patent Specification, Application No. 09/901,193. I have deleted much perhaps confusing explanation from the Specification and included the edited result herein as ATTACHMENT A. I did not add anything new, and I did not change the page numbers, so you can readily see what has been deleted. Deletions include bottom page 4, middle page 5, middle page 6, bottom page 7 to top page 15, bottom page 22, page 23, virtually all page 24, top of page 25. I believe you will find the Specification more acceptable and more understandable.

I have deleted a few words from the claims, and inserted three or four, all of which have antecedents, to clarify the Claims, yet convey the same ideas as the original. IF THAT IS NOT ACCEPTABLE, please revert to the original Claims wording.

I have expended much effort to demonstrate the two cases of prior art you used as the basis for Claims rejection do not apply to the methods and apparatus we have disclosed.

I do not desire to delve deep into the physics behind the phenomena we are dealing with, nor do I wish to cause a delay in patent issuance by claiming a specific power gain with our device, especially if it is a point of contention with the patent examiner; therefore, I have deleted all references to specific power gains. Our device does what it does, regardless of what I say. What follows is a point by point answer to your recent communication titled DETAILED ACTION.

Re: POINT BY POINT ANSWER TO DETAILED ACTION relative to
Patent Application No. 09/901,193, Art Unit 2834

OATH/DECLARATION

1. The oath or declaration is corrected by the following inclusion of an address for first named applicant,

John W. Moreland
544 Nashville Pike, Suite 112
Gallaton, TN 37066

DRAWINGS

2. Both figures were included in the file when it left my hands, and the Patent Office acknowledged receipt of the drawings. If you have Figure 1, you have Figure 2, since they are on the same sheet. See enclosed copy of drawings.

SPECIFICATION

3. After deletions I have made, the disclosure format should not be judged defective, because it fulfills the spirit of the law on the subject, which requires the inventor to disclose how to make and use the invention. Other than an added section, it conforms to the format you suggest. If you look, you will notice both METHODS and APPARATUS sections refer to the Drawings, and the Detailed Description of Apparatus section is not now a "laundry list" as you charged , but an intelligent recapitulation and repetition of the foregoing section. I have removed the bulk of the difficult theory originally included in "Features of the Invention" section, now leaving the bulk

of the description in the "Detailed Description" section. (My original intent in handling the subject matter in the first place was to include more information, rather than not enough. Also, you apparently may not have perceived I sought expert assistance with the Specification, particularly the following parts: Title, Summary, Claims, and Abstract.)

Claim Rejections-35 USC @ 112

4. The Specification conforms to your quoted paragraph. Anyone familiar with the rudiments of electronics can readily build it from the description given, as it is a very basic circuit, so basic in fact that a mere glimpse of the line circuit drawing is sufficient to comprehend it as essentially a series of repetitions of one circuit idea to multiply small effects.

5. I deleted much of the long technical section under "Features of the Invention," because it apparently is confusing, although it was intended to be informative as you demanded. The originally added information was included because relatively few are skilled in the art of obtaining electric power from quantum particles. By your questions, I presume you may not be one of those to whom this Specification was written. A knowledge of basic nuclear physics is required at the onset, or the source of power is incomprehensible. On page 4, I did point out there are enormous energy reserves in nuclear materials of all kinds, and on page 8 of the original specification, I illustrated the power in the often ignored alpha particle, up to eight million electron volts. Equal and greater energies pertain to beta particles and gamma rays. These particles and rays are given off spontaneously all the time, and their energy can be utilized or wasted, just as wind, Sun, and ocean wave energy. I pointed out on page 4 the commonly accepted energy equivalent of one pound of uranium equaling three million pounds of coal.

Gustav LeBon calculated a piece of metal the size of a bullet traveling at the speed of light has an equivalent amount of kinetic energy as contained as potential energy in a train load of coal many miles long. DeBroglie, the French physicist, taught a high speed atomic particle carries along with it an electric and magnetic field, possessing an oscillating frequency proportional to its speed. If particles travel at different speeds, they possess different frequencies (see page 2, and page 8 of the original Specification).

Pages 9 to 15 of the original contain my explanation of where the energy originates, and how it is obtained, as does page 22, line 6. On page 23, I write of decreasing circuit resistance, increasing core flux and decreasing magnetic core reluctance through radioactive emissions. Pages 24 also contains an explanation, as does page 26, paragraph 2 forward. Our device follows the common Ohm's Law of P=I squared R; by increasing voltage, current and resistance are minimized, just as high voltage lines carry electricity over our continent with minimum losses; it is later stepped down with transformers for home and business use.

To summarize, the energy of an electrical and heat nature is contained in the heavy nuclei, mainly of elements number 84 and higher on the periodic chart, which are coming apart naturally. Some isotopes of lighter elements also are similarly unstable. All these elements give off neutrons, alpha particles, beta particles, gamma rays, positrons, neutrinos, and so on, depending on what particles in the nuclei are either missing or in overabundance.

To answer your objection, I made NO claim to a nuclear fission or fusion reaction taking place in any of the circuit components of our device.

On page 15, I made it clear some of the energy coursing through the device's circuit comes from the atmosphere around the antenna, which atmosphere is itself a semi-ionized gas full of free electrons. One could call them Compton electrons. The radio waves are merely a starting current, a trigger current, or a catalyst to cause harmonic oscillations to take place.

The AM radio signals come from AM radio stations, the commercial type, or from any other radio frequency source of an approximate bandwidth of 20 kHz to 1750 kHz, higher or lower. See page 7, last paragraph; page 12 paragraph 2; and page 13, first half of the original specification.

In addition to the disclosure of radioactively-transformed capacitors, there IS INDEED an antecedent disclosure relative to semi-conductor valves, transformers, diodes, inductors, etc. per claims 2 and 4-5 on page 7, first 2 paragraphs; page 11, last paragraph; page 12, last paragraph; and page 18, paragraph 3; and page 26, paragraph 2 of the Specification.

I clearly define what is meant by "radioactively transformed" on page 7, paragraph 3.

To answer your questions what radioactive elements are used to transform the circuit elements, and what others besides UO2 are possible, I clearly and repeatedly explained there are any number of other useful radioactive elements—see page 7, line 8: page 14, line 7; page 15, line 3; page 17, lines 11 to 2 from the bottom; page 18, lines 21 to 4 from bottom; page 21, paragraph 3; page 22, paragraph 1; page 26, paragraph 2. Many of these references are still contained in the shortened Specification, ATTACHMENT A.

Contrary to your allegations in the questions you posed, and the statement you made, the above are examples of where the description more than adequately provides sufficient disclosure to make and use the device.

No doubt you know how inefficiently atomic and hydrogen bombs convert the bonding energies of atomic nuclei into intense heat in the form of high energy x-rays (and produce Compton scattering and EMP in the Earth's atmosphere). Only about a gram ($1/29^{th}$ of an ounce) of bomb mass is converted to energy. Typical nuclear energy reactors employ elaborate methods to obtain this same energy in piecemeal amounts.

Perhaps the deletions from the Specification will help you understand that it indeed explains how we converted nuclear energy into usable electric power, and exactly how we built one of our prototype devices. Anyone with a basic knowledge of electronics and quantum physics, can do as we did. To such, the Specification should be adequately plain.

I did not intend to embark in the Specification on a book-length explanation of my theories how the crystal lattices in the galena, the transformer core, and copper plate fixed capacitors absorb the great energies of the naturally dissociating nuclear elements, and give up the energies to a stimulating external wave. But, by analogy, it is like striking a match to light a bonfire. How, you ask, can a mere spark produce an inferno, such as a forest fire? It's a matter of using a smaller force to control a larger one, or to stimulate a greater energy with a small one.

How the transducers work is a matter of quantum physics speculation. A "transducer" is a very general term having to do with converting energy from one form to another, lets say from heat (through steam) to mechanical rotational energy. An electric transformer in some instances is referred to as a "transducer," meaning it changes power going through it from one voltage to another. Our device's circuit taken as a whole is also a transducer. The word "transducer" as used in the Specification simply means changing the high energy of atomic particles typically picked up by a Geiger counter into free electrons far in excess of those carried by the stimulating voltages, comparable to the match and the bonfire. In this sense, the radioactively influenced circuit components may act like in-line boosters to, in effect, lower normally prevalent circuit resistance.

The foregoing explanation in no way intends to leave out the antenna and grounding system, because they interact with the atmosphere to further augment the power derived from the device. As you probably know, the air outside has a great voltage gradient relative to height above the ground. For every meter above ground level, there is an added positive electric charge of approximately one hundred volts in fair weather, and even greater in stormy weather. So, if the antenna used herein were three meters high (approx. 15.9 feet), the voltage potential between atmosphere and Earth would be approximately 300 volts. This voltage increases with height at the rate of a hundred volts per meter up to a few miles, then increases at a decreased rate up to the ionosphere where there are hundreds of thousands of volts difference between the Earth below and the ionosphere. In any given minute, there are approximately 1,800 lightning storms in progress over the surface of the globe to relieve the atmosphere-Earth voltage difference, the Earth being mostly negative, while the air above is mostly positive.

Oleg Jefimenko performed extensive experiments with atmospheric electricity, even running small static electric motors with it, more as a curiosity than anything useful. He did this with a single point of piano wire raised about twenty feet into the air. In one of his experiments, he used a vial of polonium as a substitute for the discharging point. I once read a magazine article about someone else who did an experiment with a kite string having metal tinsel on it which in fair weather delivered 6,000 volts of electric energy to the Earth through a small-gauge copper wire, a dangerous amount. Benjamin Franklin was lucky when he performed his hazardous kite-to-ground experiment during a storm, because two later experimenters, one a Russian, were killed copying him.

The starting potential difference for our device was about two hundred fifty volts between antenna and ground. And while measurable static current was very small, the radio-frequency oscillating currents in and about the antenna when the device was operating had remarkable disturbing effects on the air, and received added power from the atmosphere through the antenna. One day, part of a lightning strike some distance away was readily absorbed into the area disturbed by the device's antenna, and was conducted into the machine's load circuit.

The machine does much more than convert almost non-existent radio wave energy into electrical power, to counter your assertion, although alone, a strong radio station can light a low-power, light-emitting diode. A simple crystal radio illustrates the maximum power to be derived by the means you suggest, which is very little.

The words "doped semiconductors" are approximate terminology for describing the "diodes." Strictly speaking, "doping" is a very exact addition of a small amount of foreign material, such as gallium or phosphorus, into a very pure crystalline substance, such as germanium or silicon, to produce holes or electrons, on the order of parts per million or billion. Our device's diodes are more alloys containing 5 to 20 percent (parts per hundred) radioactive elements.

To further answer your question, about the source of the AM radio signal, the obvious answer is from an AM radio station, or anything else capable of generating a signal of that frequency. Knowledgeable people know the radio frequency band starts about 20,000 cycles (Herz) per second, and commercial AM broadcasts range from about 525 kHz to around 1650 kHz, with a recent addition up to 1750 kHz. Rapid electron oscillations in a broadcasting station antenna give off detached electromagnetic waves, because the electrons coursing through the antenna cannot change directions rapidly and hold onto their whole fields at the same time. The wave detachedment phenomenon is caused by "accelerations," as they are called. Any change in direction of an atomic particle, such as an electron (beta particle), alpha particle, or gamma ray is an acceleration, and it gives up some of its energy, if the change in direction is fast enough.

Middle of page 17 through middle of page 22 fully discloses "semi-conductor valves, transformers, diodes, inductors, etc." On page 17 diodes, valves, and semi-conductors refer to the same thing.

As I stated above, what radioactive elements are used to "transform" the circuit elements are repeatedly explained. UO2 is not the only possibility, and why that is so is explained. Therefore, how can this be used as a prime example of where the description fails to provide sufficient disclosure to enable one to make and use the device? Please refer to the original Specification, as well as ATTACHMENT A, the shortened version.

Page 7, line 8; page 14, line 7; page 15, line 3; page 17, lines 11 to 4 from bottom; Page 18, lines 21 to 4 from bottom; page 21, paragraph 3; page 22, paragraph 1; and page 26, paragraph 2.

6. I sought expert assistance before I submitted claims as 35 USC 112, second paragraph, requires. I submitted properly formatted Claims, one main and several dependent ones, to cover distinct and definite subject matter regarded as the invention.

7. Under 35 USC 112, claims 1-8 should not be rejected on grounds you recite, since while they are broad, they do particularly and distinctly point out the subject matter which I regard as the invention to anyone skilled in nuclear and electronic arts. I have read several patents, and have yet to read one wherein I could build the invention from the claims alone. The claims I present are not intended to be vague and indefinite, but purposely broad.

Let's take your objection, the recitation "applying radioactive elements to transducers structured as radioactively transformed circuit components" is vague and indefinite. Since the invention centers around radioactive elements and atmospheric electricity, the "transformed" characteristic of a circuit component is the issue. Unless there is a radioactive influence applied to a circuit component, it is essentially neutral or common in our application, so the components are "transformed" by the "applied" radioactivity. Otherwise, I could not call them "transformed." "Transformed" means "to change markedly the form or appearance; to change the nature, function, or condition of; to convert," so until it is changed by radioactivity, it is not transformed. On page 7, paragraph 3 and elsewhere in the Specification, I state the transformation can be in many ways. The affected circuit components are mentioned specifically, hence the claim is broad, not vague. If they are included in the circuit, by extension the circuit itself is "transformed."

Your recitation "applying oscillating waves and voltages to said transducers" is vague and indefinite I answer with the same argument as the foregoing paragraphs. It is broad, but not vague and indefinite for the following reasons. The word "transducer" is carefully used and defined in the Specification, page 4 forward, so the term is not vague and indefinite. It means to change energy from one form to another, in this case from radioactive dissociations or free atmospheric electrons to useable electric power.

To answer your question, "Is an oscillating wave the same as a voltage or different?" I answer there are two kinds of currents and/or voltages, direct and alternating. If it alternates, goes back and forth, or makes an electrical rotation, that is, goes from positive to negative and back to positive, it is oscillating. While the oscillating or alternating wave has both voltage and current, the voltage or pressure component is sometimes greater, so it is convenient to speak of it as representing the whole. The words have specific meanings, and are not vague and indefinite when understood.

In answer to your question, "What if the wave were an oscillating AC voltage?" By definition of common electrical terms, oscillating and alternating current (AC) mean the same thing. "Wechselstrom" is AC in German, meaning "changing current," in contrast to "Gleichstrom" or DC, meaning "same current." A wave can be almost anything, from ocean water to a sound wave. The "voltage" makes the wave electric. Since the wave has far more voltage than current, it is technically correct to refer to the voltage. Any oscillating electric wave has an AC component, which is presumed unnecessary to explain to someone skilled in the art, it qualifying as an analytical proposition.

The recitation "collecting electrical energy generated by said transducers" (I could use the word "components" in place of "transducers") is an obvious and necessary statement. After all, what good is energy if it is not collected before being used? We have incoherent, uncollected energy all about us. The noise at a football game is incoherent, uncollected and unused energy. Sunlight is not useful, unless absorbed or collected and used. Nor is firewood lying in the forest of any use, until collected and used for home heating. I could employ the word "absorbed" in the place of "collected." There are several ways to absorb and/or collect energy, so the word "collect" is partly a choice of words, but is again broad, but not vague.

"How is the energy 'generated' by the transducers?" you ask. Part of the energy is the result of spontaneous dissociations of radioactive elements producing free electrons in the transformed components, and part is yielded by the atmosphere above the Earth. A full explanation will eventually come forth with the kind of inquiry prosecuted by quantum physicists, after much study and experimentation. I stated my best and safest explanation, based on accepted physics in the original Specification. See the middle of page 6 through the middle of page 15; page 18, paragraph 3; page 19, paragraph 4; page 20, paragraph 1- 3; page 23, paragraph 3 forward; page 24, paragraph 2; and page 26, paragraph 2 and 3. Obviously, the free electrons produced by the radioactive elements add to the stimulating electric wave at the proper instant to produce a strong, coherent, undamped, resonant frequency.

In claim 6, "receiving radio waves" cannot be construed to be vague, once the terms and procedure are understood. The device is, after all, a radio receiver, as well as a generator of free electrons. It is stimulated by raising and lowering voltage pressures in its stages in harmonic relationships. The incoming radio waves are a convenient trigger to cause the device to oscillate at a frequency dictated by the isotropic or actual values of its parts, whatever rating they are nominally given. Radio waves comprise a known band of electromagnetic energy beginning somewhere around 20,000 cycles per second and extending into the megahertz, even gigahertz range. The waves may radiate from a commercial radio station, or from any other source generating radio-frequency oscillations, or the oscillations may even be below the r-f range. See pages 13 and 14 of original Specification.

In claim 7, "with the antenna and Earth's ground plane acting as the two capacitor plates of the tank circuit" is not indefinite in radioman's jargon. It is the accepted physical description of how a radio's external antenna interacts with the Earth and its atmosphere. And it has a direct antecedent on page 24, paragraph 2. The whole device described in the Specification and drawings is a series of tank circuits, the most common of oscillators, a simple inductance and capacitor in parallel. My description of a tank circuit needs no defense to "anyone skilled in the art."

The two words "Earth" and "Earth's" in claim 7 are used correctly with intended slightly different meanings. Among my credentials is that of English teacher. The first usage is a

compound noun like "Sun spot" and "high school." The second is a possessive noun, comparable to a possessive pronoun, such as "his play ground."

In claim 8, "whatever means available" cannot be construed to be vague and indefinite, but is necessarily broad, once the context of the words is defined. Many devices can be a source of radio waves. Heat from the ground, from trees, and from rocks generates a known radio frequency. Telescopes aimed at the heavens receive a cosmic radio frequency. The stimulating radio frequency can be external or internal to the device. There is a very great number of devices and designs which can generate r-f waves, and applicant's energy apparatus will respond to those within its circuit's ability to do so.

Claim Rejections—35 USC @ 101

8. The inventors herein believe 35 USC 101 is satisfied by the Specification and its attendant Claims. They believe they have discovered new and useful methods and apparatus for obtaining electrical energy utilizing radioactive materials coupled with atmospheric charge differentials.

9. Claims 1-8 cannot be rejected under 35 USC because the disclosed invention is deemed by the patent examiner to be inoperative. Simple, common tests demonstrate measurable energy is present in the circuit components and environment as claimed by applicants. A Geiger counter held near any one or all three of the components, the fixed capacitors, crystal diodes, and transformers, registers great radioactive energy being emitted, sufficient to penetrate the Geiger counter tube at some distance. If the beta and alpha shields are removed, even more radioactivity registers.

If a simple, pointed, stainless steel wire length is connected to a copper wire, and raised high into the air away from buildings and trees, a potential difference of hundreds to thousands of volts can be measured with a high voltage, low current meter, when the meter leads are placed in contact with the antenna wire and a deep, wetted ground rod or buried steel pipe. How to maximize power recovery from these sources is what this energy device purports to do.

Art Bell, on his nationally syndicated radio program recently reported, and showed on his WWWeb site, a loop antenna he erected around the perimeter of his Pahrump, Nevada acreage. He reported the approximately 1,200-foot loop of heavy copper wire, raised approximately 30 feet into the air, delivers a constant 300 volts, and sparks appear when he makes and breaks the antenna wire connections. The high voltage causes him difficulty with his radio equipment, and he is considering ways to shunt it to ground to get rid of the "static electricity."

There is a rumor circulating that the Gakona, Alaska HAARP phased antenna array obtains multiple, input to output, atmospheric electric power gains, but this writer has no eyewitness proof of such. The Northern Lights, however, exhibit great electrical energy in the upper atmosphere, giving off dazzling light for thousands of miles (or kilometers) when charged particles from the Sun and elsewhere in the universe impinge on the magnetic poles of the Earth.

And let us not forget the approximately 1,800 lightning storms taking place at any given minute, night or day, over the surface of the Earth to relieve the potential difference between Earth and atmosphere. About 100 times every second lightning strikes somewhere on Earth, and each lightning strike is 100 million to 1 billion volts at 10,000-20,000 amperes of current, heating the conducting air column 15,000 to 60,000 degrees Fahrenheit.

The patent examiner should reflect on the position he has taken in reference to this energy device disclosure. He has effectively admitted no one has built such a device before, and by implication it is a new and useful invention with no prior art to interfere with applicants' Claims. Now for some incisive questions: Would patent examiner allow the Claims if the energy device

produced 1,000 watts, instead of 4,700 watts? Would patent examiner allow Claims if the device produced a steady 100 watts? How about a steady 25 watts, enough to charge storage batteries day and night, or even 10 watts? The least of these is a significant amount, given the size of the described apparatus, and given the measured radio trigger signal is around 50/1,000,000 ths of one watt.

To uncloud and unhamper this application for a patent, applicants herein have deleted all claims to specific power gains, other than to say there is some power gain.

Supplying a working model is difficult to do at this time, and perhaps even unnecessary, since currently some of the components are almost impossible to obtain. Several previous prototypes have exhausted the restricted materials formerly had for experiments. Besides, no specific power gains are now claimed, and a little power gain is a logical product of the device.

How a few microwatts of power can produce more power (Specification, page 23, lines 8-10) is analogous to the match starting a bonfire, as mentioned earlier. The power gain also has to do with the key principle of WAVE COHERENCY. By adding enough small boosts of energy in phase to reinforce a wave, the wave will grow in magnitude, exactly like a mother adding energy in phase to her baby sitting in a swing as it oscillates back and forth.

By way of further explanation, light waves emitted from various points on the surface of a light bulb are projected at different frequencies, some of which cancel others out, most being out of phase. A laser causes light waves to be emitted "in phase," which, as a coherent beam, can cut steel with the same wattage incoherent light only warms it. It is also similar to a noisy crowd of people talking at will, as opposed to a large choir singing as one voice. Likewise, intense radioactive particles and rays given spontaneously off the surface and within a specimen of uranium or any other radioactive element are out of phase, or are incoherent energy. Our device introduces or causes coherency and greater usefulness to the natural dissociations, as well as causing coherency in the ionized gases surrounding the antenna. No other inventors of record appear to have done this.

That is not to say we will not build a working model. It just seems unnecessary at this time, given evidence the theory of operation is sound, and that the device really works in some measure.

Claim Rejections – 35 USC @ 102

10. We contend our exact patentable ideas have not been previously patented, nor published up to this time under 35 USC @ 102, and I have thus far explained why we have valid patent Claims which will be logically defended, strengthened, and refined as this reply continues.

Applicant herein counters patent examiner's argument that Claims 1-5 and 8, as he understands them, should be rejected under 35 USC 102(b) as being anticipated by Dehmelt et al. (US 3,257,570).

Summarized in other words, present applicant's Claims 1-5 and 8 disclose a method and apparatus to obtain electric power by using several different kinds of radioactive-element-influenced circuit components to which are applied alternating currents, and collecting the same electrical energy for use, without an external antenna and Earth ground plane.

In the first place, applicant's device anticipates an internal antenna with a substitute for the Earth ground plane, or mobility. Dehmelt's diode does not act as a radio wave receiver.

To applicants herein, the different parts used in their energy device circuit have radically diverse functions not covered by Dehmelt's P-N junction diode. Dehmelt's "semiconductor

device" is very carefully doped silicon, and requires highly diluted, low-energy, internal beta radiation bombardment to prevent destruction of the crystalline material in which the radioactive substance is included.

Reviewing Dehmelt's patent claims, we discover Dehmelt proposed a semiconductor "generator," a "semiconductor battery," having two oppositely doped zones to form a P-N junction or "space charge region," with at least one zone having radioactive substance added therein. He preferred the beta emitting substance not emit beta particles with a force to exceed 100,000 electron volts, such as low energy and long lived nickel-63 or palladium-107, between where the two regions meet. He also preferred "the radioactive substance be located to produce charge carriers at a point spaced from said P-N junction a distance which is equal to the length of no more than one diffusion path from the barrier layer; otherwise, the charges from the radioactive element will be unable to contribute to the formation of the potential at the barrier layer." His "semiconductor battery" produced a charge carrier liberated from atoms by beta radiation to "contribute somewhat to the voltage" flowing through the device, meaning only slightly less bias voltage is necessary in a circuit in which his diode is installed. Dehmelt makes no representation whatever concerning reverse breakdown voltage characteristics of his diode, a very important missing detail. We can safely assume, though, that like most other diodes, Dehmelt's device allows current to flow in only one direction through it.

The only part remotely similar in applicant's device to Dehmelt's is the galena crystal point contact diodes which not only are leaky enough to allow alternating current to pass through them, usually a very bad feature in diodes, but they withstand and absorb very energetic particle energies, such as gamma rays, alpha particles of up to 8 million electron volts, and high energy beta particles within the crystals. Furthermore, Dehmelt's diodes are rather delicate, low-density, low-energy diodes, while applicant's crystal detectors are robust and high energy density capable.

The capacitors in applicant's device, unlike diodes, add voltage to the circuit proportional to their plate area and dielectric or insulator strength, while diodes typically add current (amperage) during forward bias, and the higher the diode saturation current compared to forward bias current, the better the diode.

Applicant's transformers function as voltage changers, something Dehmelt's diodes simply do not do. Diodes typically allow almost all current (amperage) to pass, but almost no voltage in the forward direction.

Rejecting claims 1-5 and 8 because they are anticipated by Dehmelt et al in US 3,257,570, as with the other references cited to follow is to commit the fallacy of dwelling on slight similarities when the differences are what really matter. In this case, Dehmelt et al's patent subject is quite different from ours for the following reasons. Our device's components, made of fundamentally different materials, easily accept energies of 8 meV and greater from alpha, beta, and gamma rays. Dehmelt's device includes radioactive elements only within the thin P-N layer and of a density of one part in 10 to the 6^{th} to 10 to the 9^{th} power (10 million to 10 billion), a very demanding device to produce. Due to the sparseness of inclusions of relatively low energy level substances, radiation energy in Dehmelt's diodes is therefore necessarily small.

Our diodes are more imprecise alloys with only rough approximations of radioactive inclusions, about 5 to 20 percent (parts per hundred) , which materials are typically mixed uniformly throughout the whole crystalline structure, completely unlike the Dehmelt semiconductor with its small radioactive band. Dehmelt's device appears to be a true p-n junction semiconductor, and ours more a point-contact semiconductor, and may not even be a true semiconductor at all. Dehmelt's is made mainly of silicon with carefully added impurities. Ours can be either natural or man-made lead sulfide (PbS) or other similar materials, a natural absorber of radioactivity, with any number of naturally occurring impurities; plus ours accepts radioactive materials of almost any description. Dehmelt's diode is low-power, complicated, and expensive to make, and ours is high power, simple, and far less expensive to make.

Dehmelt's p-n junction semiconductors are NOT equivalent to applicant's semi-conductor valves, capacitors, transformers, and diodes. In the first place, "semi-conductor devices" include a wide variety of diodes, transistors, thyristers, thermisters, zeners, FETs, MOSFETs, and any number of other electron-regulating, semi-conductor circuit components. As a single semiconductor component, Dehmelt's semiconductor device CANNOT replace capacitors, transformers, nor even the point contact crystalline detectors in applicant's circuit.

Dehmelt's diode is a stand-alone part which can be used in light applications wherever such a junction diode is suitable. P-N silicon junction diodes tend NOT to be sensitive radio wave detectors anyway, something necessary in our immediate application. The unsatisfactory performance of p-n junction diodes is based on my experience and the experience of a group of other crystal radio experts and enthusiasts who maintain an Internet information-sharing, World Wide Web site, called www. midnightscience.com.

Claim Rejections – 35 USC @ 103 (a)

12. Examiner's contention that subject matter of application is obvious fails to take into account the reality of quantum physics research. In quantum mechanics, very little is "obvious," because no one can easily sense-perceive atomic particles and accompanying phenomena. I know of no one who has actually seen an electron, proton, or neutron, certainly not gamma rays. Only their elusive effects can be observed or measured to some degree. The best scientific minds in our time are applied to understanding quantum mechanics, and theories abound which can only be proved or disproved by careful experimentation and measurement. Frequently, the activities of atomic particles and subparticles are COUNTER-INTUITIVE, that is, they do not behave at all in the "logical" manner Newtonian or classic physics prescribes. Particles or photons can disappear and reappear, tunnel through barriers, or change sign of charge, or even change from one particle into another without any logical human reason. The world of atomic physics is a very different world from the greater world in which they appear to exist.

Examiner's skepticism and statement applicant's invention is obvious is tempered by his request for a working model. Obviously, nobody else has built one before. Skepticism is obvious and understandable, but applicants' invention is not obvious to those "skilled in the art." Many researchers have labored for years, attempting to understand the principles of it.

13. The patent examiner should not reject applicant's Claims 1-8 under 35 USC 103(a) as being unpatentable over Logan et al. (US 5,043,739) in view of Dehmelt et al., because among other reasons, examiner made two material interpretive mistakes in citing this patent as prior art. Quoting examiner, "Logan teaches a high frequency 'rectenna' comprising semiconductors such as field emission diodes for collecting and rectifying electromagnetic waves..." AND "First and second antenna halves comprise semiconductor sections 1 and 3 (Figs.1&2)."

Logan actually teaches a microwave "rectenna" incorporating vacuum tube field emission diodes for collecting and rectifying electromagnetic waves of microwave frequency. Logan does not employ semiconductors as diodes. In fact, according to his stringent performance standard, Logan states on the first page "these parameters help illustrate the inefficiency and fragileness of semiconductor diodes in a rectenna," meaning Dehmelt's semiconductor diodes, along with other semiconductors are specifically excluded, including the more rugged Schottky-barrier diodes. Further, first and second halves of Logan's rectenna are metal conductor strips making up the two halves of the field emission diode. Examiner is correct, though, in saying Logan's antenna does not utilize radioactive elements, as does applicant's device, comprising an important difference between applicant's and Logan's devices.

Patent examiner suggests Dehmelt's frail, lightly radioactively doped P-N junction diodes could substitute for Logan's field emission diodes, and that Dehmelt's diode and Logan's rectenna are an OBVIOUS union to "raise electrons from the valence to conduction band, and thus improve current generation." Discussing raising valence band electrons in semiconductors in conjunction with Logan is a moot question, given the premise Logan et al. did not employ semiconductors in his rectenna.

An important question to raise here is whether Dehmelt's P-N junction diode would even work in Logan's rectenna, based on Logan's recorded specifications. As stated previously, Logan denies any semiconductors will work satisfactorily in his application. By extension, applicant's point-contact-type diodes may not work either, especially given their extremely low reverse breakdown voltage, less than 20 volts. Metallic field emission diodes in Logan's rectenna handle 500 volts and more, where the reverse voltage of a Schottky-barrier diode is only 60-70 volts. The best diodes of other prior art referenced by Logan provided an output voltage of 8.9 volts at .4 watts per diode, with reverse breakdown voltage of only 20 volts. Hence, the union of Dehmelt and Logan and applicant's apparatus intuitively may appear obvious, but in practice falls short.

Logan's rectenna is designed to rectify 10,000 to 10 GHz microwave oscillations with antenna embodiments designed for that span of frequencies. Otherwise, it has no tuning parts to compare with applicant's energy device.

Logan rectifies to direct current (D. C.) the alternating current of the incoming signal beam. The critical reason the rectification is done at the antenna is to prevent out-of-phase cancellation and interference of signals arriving at slightly different times by slightly different paths, even at slightly different frequencies.

As illustrated in several Figures, Logan's field emission diode is a fancy name for a metal point near a blunt metal conductor under low gas pressure or under near vacuum conditions. He employs a long known phenomenon of electric discharge from a point, going all the way back to Benjamin Franklin's lightning rod, and even before that, to "influence machines" which generated static electricity for 17^{th} and 18^{th} century laboratory and parlor game curiosity.

The device Logan patented was designed for microwaves of 3 cm and smaller. His rectenna was around 1.5 cm, or roughly half the signal wavelength. Each side of the preferred dipole embodiment was, of course, one-quarter wavelength. One can see the Logan device was very small in any of its embodiments, so small, in fact, the whole microwave receiver could be place in a vacuum tube. Logan's rectenna can be produced by the same methods used to make printed circuits, photolithography. And while it can be multiplied, it is not staged in the manner of applicant's device. Also, applicant's energy device is immeasurably larger, because it is dealing with far longer wavelengths of electromagnetic energy.

Key to Logan's device is turning oscillating microwave energy into D. C. current at the antenna, while applicant's device does not necessarily need to convert its energy to D. C. at all, except as a convenience. Applicant's antenna, as presently disclosed, should be in contact with the atmosphere, while Logan's rectenna does not.

Logan's preferred distance between the anode and cathode of his metal diodes is ten microns, and preferably three microns, or three millionths of a meter, no doubt partly due to the short transit time he anticipates at microwave frequency, 3-10 microns being a small fraction of a 3 cm wave, as well as being the distance necessary for the field emission phenomenon to work. That would leave a paper-thin, less than ten microns for Dehmelt's doped P-N band between the anode and cathode, if Dehmelt's device is contemplated as a substitute. Presuming Dehmelt's radioactive element density in his P-N band is the diluted one part in 10 million to one part in 10 billion, and presuming Dehmelt's prescribed nickel-63 and palladium-107 emit a limited number of low-energy beta particles per square centimeter, how much of the radioactive elements can be placed in the restricted space specified by Logan, and how much power can be expected from them, in addition to the voltage limitation suggested by Dehmelt? The answer is that Dehmelt's

diode is not a substitute in Logan's high frequency rectenna, and even if it were, the added power output would scarcely be measurable. The point again here is that while some ideas appear obvious in theory, they do not work in practice.

Applicant's device has almost no resemblance to Logan's which concerns itself with wavelengths of 3 cm (approx. 1.18 inches) and smaller, while applicant's device utilizes wavelengths in the neighborhood of between 30 meters (100 ft.) and 1,500 meters (4,920 ft.). By comparison, one may as well shine a flashlight on applicant's antenna . It would be just as insensitive to the visible light electromagnetic frequency, as it would be to Logan's microwaves. The shorter the wavelength, the more a radio wave acts like a beam of light, hence dish-shaped antennas for microwave reception, or a very tiny antenna like Logan's. Germans, during the battle of Britain, were defeated because their long-wave radio receivers could not detect the microwaves produced by British radar installations.

True, all three of the discussed inventions utilize diodes. If electrons they use are created equal, all diodes are not the same. Logan's diodes are vacuum field emission types, Dehmelt's diodes are a precisely doped p-n junction type semiconductors not ideally suited for radio wave reception, and applicant's point contact "diodes" are essentially lumps of lead sulfide or similar material which have radioactive inclusions, while Logan's have no semiconductor nor radioactive components. Logan promotes his device as having substantially higher power handling capabilities than prior art which includes Dehmelt. Logan anticipates handling 500 volts plus, compared to 8.9 volts and .4 watts of power per diode for previous art which diodes required special cooling facilities. Applicant's device handles high voltage at low amperage between antenna and ground, and requires no special cooling facilities for its electrically leaky detectors which act in measure like semiconductor diodes.

Logan's rectenna is central to his device's operation, but the antenna can be more or less incidental to applicant's device, and is huge in size in comparison with Logan's, since it is designed for a different type of electromagnetic radiation and for gathering atmospheric charges.

Logan hopes for over 40% power efficiency with his rectenna, which means around 60% of the input power will be lost, while applicant's device produces power appearing to be several times over unity. At any rate, applicant's energy device is incomparably more efficient than Logan's.

With all due respect to the patent examiner, combining Dehmelt and Logan's devices would NOT obviously equal the power producing capabilities of applicant's device. But even if they were married, that would constitute a new use in itself, given the need to solve the problems which would manifest themselves in the process.

Conclusion

14. Prior art of record offered by examiner, and considered by examiner pertinent to applicant's disclosure, and not relied upon by applicant for reasons demonstrated in the foregoing points and analyses is an issue here. Examiner's objections and the prior art to support those objections have been the focus of applicant's answers thus far. Acknowledging patent examiner's research into prior art deemed relevant to applicant's energy device (Application/Control Number 09/901,193), applicants hereby have shown and will continue to show the selected prior art is fraught with important differences and misapplications relevant to their own disclosure. Those points appearing to conflict directly with applicant's Claims are addressed in the previous paragraphs and pages. Those only mentioned in patent examiner's Conclusion are addressed following, not necessarily in the order examiner listed them:

W. C. Brown's Microwave Operated Space Vehicle (US 3,114,517) is hardly relevant to applicant's device, as applicant's device as presently presented does not utilize energies in the microwave frequency range, nor does Brown utilize radioactive substances. Brown advocates a gas-filled wave guide as the means to receive the energy beamed from a ground dish antenna, to turn microwave energy into usable heat to run the vehicle, and to keep the vehicle centered on the beam. Wave guides in modern times have largely fallen out of favor and development due to inefficiencies and complexity, in preference to fiber optics. Still fearing his power source may not be the end-all, Brown advocates carrying auxiliary conventional jet or rocket fuel, and even suggests a powered tether, or long extension power cord, to energize low-hovering aircraft in some applications. (That would work only with an ultra-light conductor of electricity.)

Applicant's device by contrast is a means of independently exploiting nuclear energies in spontaneously dissociating heavy elements to produce excess power in conjunction with natural atmospheric charges, while Brown's space vehicle is simply a receiver of microwave-length, electromagnetic energies beamed to it from a ground station, where the power is generated by conventional means.

IMPORTANT NOTE: Such a beam of microwave energy sufficiently laden with the horsepower to operate a high-altitude, airborne vehicle would be distinctly dangerous to humans, animals, and plants venturing inside the beam, as the dipole molecules of water in their cells would tend to couple with the rapid oscillations, heat up, and turn to scalding steam.

Applicant/Respondent herein concludes W. C. Brown's ideas for powering high-altitude, airborne vehicles are mostly unworkable fantasy, based on 1960s technology.

Paul M. Brown (US 6,118,204) is the most troubling of all the individuals researched by patent examiner, since he had a close relationship with Moreland, one of the applicants herein. Moreland had frequent conversations about nuclear energy devices with Brown, who by the way died not long ago in a street racing car accident. Brown also read a confidential report I wrote in 1981, and later used parts of it, ideas from the report, in one of his patents. Not all the ideas he claims as his own are distinctly his discoveries. Since I began my lengthy research in mid-1974, which I can prove, I am certain I was researching obtaining electricity directly from radioactive materials long before Mr. Brown.

Brown's patent subject outlines ways of obtaining electricity directly from radioactive materials, which he developed for integrated circuits while working under government contract in Colorado for about two years around 1998. He references Dehmelt et al as prior art, among others. Brown offers another kind of nuclear battery, of which there are already very many. The first sentence Brown writes under "Field of the Invention" contains language I have heard Moreland often say, relative to obtaining electricity directly "without going through a thermal (heat) cycle."

While Brown's battery is self-powered, the parts of our device are not a battery and are not self-powered outside an active circuit. Brown's device produces DC current, as any other battery, while applicant's device responds to alternating current (AC). Applicant's device interacts with the atmosphere, involving wave coherency and resonance, and Brown's device does none of these. Applicant's device is dynamic, while Brown's device acts as a static generator. Applicant's device readily accepts alpha, beta, neutron, and gamma rays, while Brown's device, as disclosed, works on beta particles (electrons), primarily from binary compounds, such as silicontritide or tritium bound to metal surfaces, and must be specially redesigned to operate on other radioactive particles and photons.

Brown's device is complicated and expensive to produce, when compared to applicant's device, and is low-power and low-voltage producing, when compared to applicant's device.

The device of Herbert H. Fowler (US 4,023,088) is mostly a case of what Einstein called "thought experiment," and appears to be a slight improvement over a turn-of-the-twentyth-century Tesla patent (US 685,957) wherein Tesla beamed ultraviolet light on a polished metal plate. At the onset, Fowler's device is 50% inefficient: The source of radiation shining on the two gated absorbers is half off and half on while the device is operating. Presuming half the radiation beam strikes the clear liquid crystal, and the other half strikes the opaque crystal, only half the radiation beam is being utilized at any given time, leaving the other half idle. Also, electromagnetic radiation, as illustrated in the disclosure, tends to decrease in strength with the square of the distance from the source, so more power is lost the farther the gates stand off from the absorbers, especially if Fowler expects to gain any power from alpha or beta particles which are neutralized in a few centimeters of air. Switching times of the liquid crystals also decrease power output which appears to be very small anyway, due to other losses, such as absorber surface work function and incoherent radioactive emissions, very unlike applicant's device.

While Fowler's device reputably produces alternating current, his device depends on producing a positive charge in both absorbers, and, unlike applicant's device, does not truly utilize both the positive and negative sidebands of an alternating current.

Ellsworth A. Edling et al (US 4,489,269) produced a device which seems to have improved Fowler's device, yet is fraught with some of the same flaws and inefficiencies. His is a "dual beam switching atomic battery" which takes the form of a vacuum tube with diode, triode, and pentode characteristics. At certain high frequencies, it will be hampered by space charges and transit time problems which will lessen its efficiency. It is intended to be self-resonant, which, as it is visualized in the patent, will never be fully accomplished. It also depends upon beta particle (electron) emitters for its operation, unlike applicant's device which utilizes several atomic particles and rays.

The device presented by Applicant/Control Number 09/901,193 is far superior to Edling's in that it is all solid-state, and is not a battery. It handles far higher voltages than Edling's circuit, and it is tunable for perfect coherent wave resonance. Unlike the Edling device's starting method, applicant's device uses r-f energy from the air waves to stimulate it into operating, at which time it continues to resonate based on the isotropic values of components of which its circuit is made. Applicant's device has no gaps between radioactive elements contained in its circuit components, in the crystal lattice, and on the metal surface absorbers, which advantage maximizes absorption of radioactive particle and ray energies to be transduced into usable electric power. Applicant's typical preferred use of a lead binary compound in his diodes (and optionally elsewhere) is also a superior feature, as lead (Pb and similar materials) is a natural absorber of radioactive eminations, and before the energy contained in any radioactive materials can be utilized, it must first be absorbed or collected, an important concept overlooked by other inventors.

15. Patent examiner may have been hasty in his conclusion the applicants herein are profoundly ignorant of patent procedure. As a matter of fact, I sought the assistance of experts in my preparation, as well as allowing selected physicists and engineers to read and critique the Specification. I was instructed in what documents were necessary to submit to the PTO. A competent patent draftsman made the proper drawings on acceptable Bristol board. Errors you perceive are actually minor and amendable. It is doubtful a patent attorney's presentation of this subject matter would make it materially clearer, since it is a difficult, technical subject by any measure. Even fastidiously correctly formatted patent Specifications are found to be incomplete and misunderstood, depending on the complexity of the technical subject matter.

16. I take notice the primary patent examiner to contact is Burton S. Mullins at the telephone numbers and unit given in "Detailed Action." Tel: (202) 305-7063; Nestor Ramirez, 308-1371; Fax 305-1341; General inquiries, 305-0956.

Respectfully,

Rodney Sego
Applicant/Control Number 09/901,193
November 15, 2002